Amendments to the Specification

Amend the claims as follows to merely remove reference numbers.

1.   (Currently amended) A method for controlling an electronically servo-assisted bicycle gearshift [[(8)]], comprising the steps of:

a) driving [[(207, 211, 307, 311)]] an actuator [[(16, 17)]] of a bicycle gearshift [[(8)]] to displace a chain [[(13)]] of the gearshift in a chosen axial direction [[(A, B)]] with respect to a gearshift group [[(9, 10)]] having a plurality of sprockets [[(11, 12)]] including at least two adjacent sprockets,

b) receiving information in a control unit on a desired alignment [[(205, 305)]] between the chain [[(13)]] and a predetermined sprocket [[(11, 12)]] of the gearshift group [[(9, 10)]], and

c) setting [[(215, 315)]] a biunique correspondence, in a control unit, between the physical position of the actuator [[(16, 17)]] and a logic value associated with a gear ratio relative to the predetermined sprocket [[(11, 12)]].

2.   (Currently amended)   The method of claim 1, wherein the predetermined sprocket [[(11, 12)]] is a sprocket with the smallest diameter of the gearshift group [[(9, 10)]].

3.   (Currently amended)   The method of claim 1 wherein step c)]] of setting [[(215, 315)]] a biunique correspondence includes the step of setting the value of a counter [[(47, 48)]] to a logic value pre-associated with the predetermined sprocket [[(11, 12)]].

4.   (Currently amended) The method of claim 3 wherein said step c)]] of setting [[(215, 315)]] a biunique correspondence further includes the step of zeroing the counter [[(47, 48)]].

5.   (Currently amended) The method of claim 1 wherein said step c)]] of setting [[(215, 315)]] a biunique correspondence includes the step of storing in storage means [[(49, 50)]] a current value of a counter [[(47, 48)]] as a logic value [[(Fx, Ry)]] pre-associated with the predetermined sprocket [[(11, 12)]].

6.   (Currently amended) The method of claim 5 wherein steps a)]] - c)]] are repeated for each of the plurality of sprockets [[(11, 12)]] and a corresponding logic value [[(Fx, Ry)]].

7.   (Currently amended) The method of claim 1, further comprising the steps of:

d) providing a user interface [[(43-46, 60-63)]],

e) receiving through the user interface [[(43-46, 60-63)]] a displacement request signal [[(206, 208, 210, 212, 306, 308, 310, 312)]] of the actuator [[(16, 17)]] in the chosen direction.

wherein in step a) of driving the actuator [[(16, 17)]], the displacement of the chain [[(13)]] is carried out in the chosen direction in accordance with the displacement request signal [[(206, 208, 306, 308, 210, 212, 310, 312)]] received in step e.

8. (Currently amended) The method of claim 7 wherein said step b) of receiving information on the desired alignment [[(205, 305)]] is carried out through the user interface [[(43-46, 60-63)]].

9. (Currently amended) The method of claim 1, further comprising the step of:

f) providing means for detecting the relative position between the chain [[(13)]] and the predetermined sprocket [[(11, 12)]] and providing the information on the desired alignment [[(205, 305)]].

10. (Currently amended) The method of claim 9, wherein the means for detecting the relative position between the chain [[(13)]] and the predetermined sprocket [[(11, 12)]] is further suitable for providing a displacement request signal [[(206, 208, 210, 212, 306, 308, 310, 312)]] of the actuator [[(16, 17)]] in the chosen direction,

wherein in step a) of driving the actuator [[(16, 17)]], the displacement of the chain [[(13)]] is carried out in accordance with the displacement request signal [[(206, 208, 306, 308, 210, 212, 310, 312)]].

11. (Original) The method of claim 10, wherein said step a) is carried out with the bicycle still.

12. (Currently amended) The method of claim 10, wherein said step a) is carried out keeping the chain [[(13)]] of the gearshift in motion.

13. (Currently amended) The method of claim 10, further comprising the steps of:

g) receiving an operating mode signal selected from a group consisting of at least a normal ride operating mode [[(102)]] and a setting operating mode [[(114)]];

h) receiving a displacement request signal [[(43, 44, 45, 46)]] of the actuator [[(16, 17)]] to displace the chain [[(13)]] of the gearshift [[(8)]] in the chosen axial direction [[(A, B)]] with respect to the gearshift group [[(9, 10)]];

i) wherein when the operating mode signal corresponds to the setting operating mode [[(114)]], at least steps a)]]-c)]] are carried out;

j) wherein when the operating mode signal corresponds to the normal ride operating mode [[(102)]], the step of driving the actuator [[(16, 17)]] of the gearshift [[(8)]] to displace the chain [[(13)]] of the gearshift [[(8)]] in the chosen axial direction [[(A, B)]] with respect to the gearshift group [[(9, 10)]], between the physical position corresponding to a first sprocket [[(11, 12)]] of the gearshift group [[(9, 10)]] and the physical position corresponding to a second sprocket [[(11, 12)]] of the gearshift group [[(9, 10)]], the physical positions being determined by the logic values associated with the sprockets [[(11, 12)]], is carried out.

14. (Currently amended) The method of claim 13, wherein the step j) comprises driving the actuator [[(16, 17)]] to displace the chain [[(13)]] in the chosen axial direction [[(A, B)]] by a distance determined by modifying the value of a counter [[(47, 48)]] by a differential amount pre-associated with the pair formed by the first sprocket [[(11, 12)]] and the second sprocket [[(11, 12)]].

15.   (Currently amended) The method of claim 14, wherein the differential amounts pre-associated with each pair of adjacent sprockets [[(11, 12)]] of the gearshift group [[(9, 10)]] are equal to each other.

16.   (Currently amended) The method of claim 1, further comprising the steps, carried out after step b), of receiving information on the desired alignment [[(215, 315)]] of:

k) driving the actuator [[(16, 17)]] of the gearshift [[(8)]] to displace the chain [[(13)]] of the gearshift in the chosen axial direction [[(A, B)]] with respect to the gearshift group [[(9, 10)]] from the current position sequentially to each adjacent sprocket [[(11, 12)]] of the gearshift group [[(9, 10)]];

l) driving the actuator [[(16, 17)]] to displace the chain [[(13)]] in the chosen axial direction [[(A, B)]] with respect to the gearshift group [[(9, 19)]]; and

m) receiving second information on the desired alignment between the chain [[(13)]] and a predetermined sprocket [[(11, 12)]] of the gearshift group [[(9, 10)]].

17.   (Currently amended) The method of claim 16, further comprising the step, carried out between step k) and step m), of:

k1)   driving the actuator [[(16, 17)]] of the gearshift [[(8)]] to displace the chain [[(13)]] of the gearshift in the chosen axial direction [[(A, B)]] with respect to

the gearshift group [[(9, 10)]] sequentially to each adjacent sprocket [[(11, 12)]] of the gearshift group [[(9, 10)]] up to the predetermined sprocket [[(11, 12)]].

18.   (Currently amended) The method of claim 17, wherein in step l) where provided for, the actuator [[(16, 17)]] is driven to displace the chain [[(13)]] at a comparatively low speed, and in steps j), k) and k1) the actuator [[(16, 17)]] is driven to displace the chain [[(13)]] at a comparatively high speed.

19.   (Currently amended) The method of claim 17, wherein in step l) a stepper motor of the actuator [[(16, 17)]] is driven to displace the chain [[(13)]] through a movement of one step.

20.   (Currently amended) The method of claim 17, wherein in step a) where provided for, the actuator [[(16, 17)]] is driven to displace the chain [[(13)]] at a comparatively low speed, and in steps j), k) and k1) the actuator [[(16, 17)]] is driven to displace the chain [[(13)]] at a comparatively high speed.

21.   (Currently amended) The method of claim 1, wherein in step a) a stepper motor of the actuator [[(16, 17)]] is driven to displace the chain [[(13)]] through a movement of one step.

22.   (Currently amended) A bicycle gearshift [[(8)]], comprising:

a rear actuator [[(16)]] and a front actuator [[(17)]], each having a respective motor, to displace through a guide element [[(14, 15)]] a chain [[(13)]] in an axial direction [[(A, B)]] with respect to a respective gearshift group [[(9, 10)]] comprising at least two sprockets [[(11, 12)]] respectively associated with the hub of the rear wheel [[(4)]] and with the axle of the pedal cranks [[(7)]] of a bicycle [[(1)]], in a selected direction;

manual input means [[(43-46, 60-63)]] comprising means [[(43-46)]] for entering a displacement request signal of a selected actuator [[(16, 17)]] in the selected direction; and

an electronic control unit [[(40)]] connected to the input means [[(43-46, 60-63)]], to the rear actuator [[(16)]] and to the front actuator [[(17)]], operative, in a normal ride operating mode [[(102)]], to drive the selected actuator [[(16, 17)]], respectively, based upon the displacement request signal to displace the chain [[(13)]] from a first sprocket [[(11,12)]] to a second adjacent sprocket [[(11, 12)]] of the respective gearshift group [[(9, 10)]];

wherein the manual input means [[(43-46, 60-63)]] comprises means [[(60-63)]] for selecting the operating mode at least between said normal ride operating mode and a setting operating mode;

wherein the electronic control unit [[(40)]], in the normal ride operating mode, drives the selected actuator [[(16, 17)]] between a logic value associated with the first sprocket [[(11, 12)]] and a logic value associated with the second sprocket [[(11, 12)]]; and

wherein the electronic control unit [[(40)]] is operative, in the setting operating mode, to drive the selected actuator [[(16, 17)]] based upon the displacement request signal to displace the chain [[(13)]] in the selected direction, the electronic control unit [[(40)]] also having means [[(43-46)]] for inputting information on the desired alignment between the chain [[(13)]] and a predetermined sprocket [[(11, 12)]] of the gearshift group [[(9, 10)]], and means [[(215, 315)]], responsive to the means [[(43-46)]] for inputting information on the desired alignment, for setting a biunique correspondence between the physical position of the selected actuator [[(16, 17)]], respectively, and the logic value associated with the predetermined sprocket [[(11, 12)]].

23.   (Currently amended) The gearshift [[(8)]] of claim 22, wherein

the means [[(215, 315)]] for setting a biunique correspondence comprise means [[(215, 315)]] for setting the value of a selected counter [[(47, 48)]] to the logic value pre-associated with the predetermined sprocket [[(11, 12)]].

24.   (Currently amended)   The gearshift of claim 23, wherein the predetermined sprocket [[(11, 12)]] is the sprocket [[(11, 12)]] with the smallest diameter and the means [[(215, 315)]] for setting a biunique correspondence comprise means for zeroing the seiected counter [[(47, 48)]].

25.   (Currently amended) The gearshift of claim 23, wherein the motors of the rear and front actuators [[(16, 17)]] are stepper motors and a displacement of the selected actuator [[(16, 17)]] by one step or by an integer multiple of steps corresponds to a unitary increase or decrease of the selected counter [[(47, 48)]].

26.   (Currently amended)   The gearshift of claim 22, further comprising means [[(18, 19)]] for detecting the physical position of the selected actuator [[(16, 17)]] and providing the physical position to the electronic control unit [[(40)]], the means comprising a rear transducer [[(18)]] and a front transducer [[(19)]].

27.   (Currently amended) The gearshift of claim 26, wherein in normal ride operating mode, the electronic control unit [[(40)]] drives the selected actuator [[(16, 17)]], respectively, to displace the chain [[(13)]] between the first sprocket [[(11, 12)]] and the second sprocket [[(11, 12)]], wherein a feedback signal is generated when the physical position corresponding to the first sprocket or the second sprocket has

not been reached, and wherein the feedback signal is transmitted to the electronic control unit [[40]] to re-actuate the motors of the actuators [[16, 17]].

28.   (Currently amended) The gearshift of claim 26, wherein the means for detecting the physical position [[(18, 19)]] further comprises means for detecting the relative position between the selected actuator [[(16, 17)]] and the predetermined sprocket [[(11, 12)]] and for generating the information on the desired alignment.

29.   (Currently amended) The gearshift of claim 28, wherein the means for detecting the relative position is also suitable for generating the displacement request signal of the actuator [[(16, 17)]] in the selected direction.

30.   (Currently amended) The gearshift according to claim 22, further comprising means for storing a differential amount pre-associated with each pair of adjacent sprockets [[(11, 12)]], wherein in the normal ride operating mode the logic value associated with the second sprocket [[(11, 12)]] is determined by adding the differential amount pre-associated with the pair formed by the first and second sprocket [[(11, 12)]] to the logic value associated with the first sprocket [[(11, 12)]].

31. (Currently amended) Gearshift of claim 30, wherein the differential amounts pre-associated with each pair of adjacent sprockets [[(11, 12)]] of the gearshift group [[(9, 10)]] are equal to each other.

32. (Currently amended) The gearshift of claim 22, wherein:

the means for setting a biunique correspondence comprise means for storing in storage means [[(49, 50)]] the current value of a rear or front counter [[(47, 48)]] as logic value pre-associated with the predetermined sprocket [[(11, 12)]].

33. (Currently amended) A gearshift according to claim 22, further comprising means [[(60)]] for outputting information defining, with the manual input means [[(43-46, 60-63)]], a user interface with the electronic control unit [[(40)]].

34. (Currently amended) A gearshift according to claim 22, further comprising a power board [[(30)]] arranged between the electronic control unit [[(40)]] and the rear and front actuators [[(16, 17)]].

35.   (Currently amended) A gearshift according to claim 22, wherein the electronic control unit [[(40)]] comprises at least one microcontroller made in C-MOS technology.

36.   (Currently amended) The gearshift according to claim 22, wherein the electronic control unit [[(40)]] is distributed and comprises many microcontrollers at a display unit [[(60)]] and at a unit for controlling the manual input means [[(43-47, 61-63)]] and at a power board [[(30)]].

37.   (Currently amended) A method for providing a control setting mode [[(114)]] of an electronic control unit [[(40)]] for a servo–assisted bicycle gearshift system [[(8)]] comprising:

    activating a gearshift setting mode [[(201, 205, 301, 305)]];

    determining whether a gearshift displacement request is received [[(206, 208, 210, 212, 306, 308, 310, 312)]];

    moving the gearshift to a desired physical gearshift position [[(207, 307, 211, 311)]];

    setting a gearshift setting mode flag [[(204, 304)]];

    resetting the gearshift setting mode flag [[(214, 314)]] at the desired physical gearshift position; and

setting a biunique correspondence between the desired gearshift position and a logic value associated with a predetermined gear ratio.

38. (Currently amended) The method of claim 37, wherein the step of moving the gearshift include the step of actuating an actuator [[(16, 17)]].

39. (Currently amended) The method of claim 37, wherein the step of setting the biunique correspondence includes setting the value of a counter [[(47, 48)]] to the logic value associated with the predetermined gear ratio which corresponds to a predetermined sprocket.

40. (Currently amended) The method of claim 39, wherein the step of setting the value of the counter [[(47, 48)]] includes setting the value of the counter to an absolute logic value [[(Ry)]] associated with the predetermined sprocket.

41. (Currently amended) The method of claim 39, wherein the step of setting the value of the counter [[(47, 48)]] includes setting the value of the counter to a logic value corresponding to a summation of differential amounts associated with the predetermined sprocket, wherein each of the differential amounts is associated with a pair of adjacent sprockets.

42.   (Original) The method of claim 37, wherein the step of setting the biunique correspondence includes the step of setting a biunique correspondence between the desired gearshift position and a logic value associated with a user-specified predetermined gear ratio.

43.   (Currently amended) The method of claim 37, further comprising determining the desired physical gearshift position using a position transducer [[(18, 19)]].

44.   (Currently amended) The method of claim 37, further comprising retrieving the logic value from a memory [[(49, 50)]] of the electronic control unit [[(40)]].

45.   (Currently amended) A bicycle gearshift system comprising:

at least one actuator [[(16,17)]] for displacing a transmission chain from a first to at least a second sprocket;

at least a first input device [[(43, 44, 45, 46)]] for entering a displacement request signal and for selecting between operating modes [[(102,114)]];

an electronic control unit [[(40)]], for driving the actuator in a first operating mode [[(102)]], in response to the displacement request signal, between a first logic value associated with the first sprocket and at least a second logic value associated with the second sprocket, and, in a second operating mode [[(114)]], for setting a biunique correspondence between a physical position of the actuator and a logic value associated with a predetermined sprocket.

46.   (Currently amended) The bicycle gearshift system of claim 45, further comprising a second input device [[(43, 44, 45, 46)]] for inputting information on a desired alignment of the chain on the predetermined sprocket.

47.   (Currently amended) The bicycle gearshift system of claim 45, wherein the electronic control unit [[(40)]] includes a counter [[(47, 48)]] and wherein, in the second operating mode, the biunique correspondence is setable by setting a value of the counter to the logic value associated with the predetermined sprocket, and wherein in the first operating mode, the value of the counter is modifiable, in response to the displacement request signal, by an amount proportional to the difference between at least the first and second logic values, and the actuator is drivable a distance corresponding to the value of the counter.

48.   (Currently amended) The bicycle gearshift system of claim 47, wherein the electronic control unit [[(40)]] comprises memory [[(49, 50)]] for storing the value of the counter.

49.   (Currently amended) The bicycle gearshift system of claim 47, wherein the electronic control unit [[(40)]] comprises memory [[(49, 50)]] for storing at least one differential amount, associated with at least a pair of adjacent sprockets, for determining the logic value of a second one of the pair of sprockets in the first operating mode [[(102)]] by adding the logic value of a first one of the pair of sprockets to the differential amount [[(□R, □F)]].

50.   (Currently amended) The bicycle gearshift system of claim 45, wherein the at least one actuator comprises a front and rear actuator [[(17, 16)]] for actuating a front and rear derailleur respectively of a bicycle.

51.   (Currently amended) The bicycle gearshift system of claim 45, further comprising at least one position transducer [[(18, 19)]] for detecting the physical position of the actuator and transmitting a position signal to the electronic control unit.

52. (Currently amended) The bicycle gearshift system of claim 45, further comprising a power board [[(30)]] for supplying power to at least the actuator and the electronic control unit.

53. (Currently amended) The bicycle gearshift system of claim 45, further comprising a display unit [[(60)]] which is integral with the control unit [[(40)]] and the input device [[(43,44,45,46)]].

Amendments to the Specification

Amend the specification to replace the symbol □ with Δ as shown.

[0048]   Making reference to Figure 4, a second embodiment of the storage means 49,50 is shown. The rear storage means 49 stores a differential amount associated with each pair of adjacent sprockets 11. Thus, in the exemplifying case of rear gearshift group 9 comprising ten sprockets or pinions 11, the rear storage means 49 are suitable for storing a differential amount ~~□R1-2~~ $\underline{\Delta R1\text{-}2}$ associated with the pair consisting of the sprocket 11 with the smallest diameter and the second sprocket 11 immediately adjacent to it (with a slightly larger diameter), a differential amount ~~□R2-3~~ $\underline{\Delta R2\text{-}3}$ associated with the pair consisting of the second and third sprockets, etc., up to a differential amount ~~□R9-10~~ $\underline{\Delta R9\text{-}10}$ associated with the pair of sprockets 11 having the largest diameters; in the exemplifying case of front gearshift group 10 comprising two sprockets or crowns 12, the front storage means 50 are suitable for storing a single differential amount ~~□F1-2~~ $\underline{\Delta F1\text{-}2}$.

[0050]   When the gearshift groups 9, 10 including sprockets 11, 12 are equally spaced by a certain pitch, the rear storage means 49 and front storage means 50 (Figure 5) are suitable for storing a single differential amount [[□R]] --ΔR-- and [[□F]] --ΔF--. If the pitch between adjacent sprockets 11 of the rear gearshift group 9 is equal to the pitch between adjacent sprockets 12 of the front gearshift group 10, there may be only a single storage means, for example just the front memory 49.

[0074]   In the alternative embodiment of the storage means illustrated in figure 4, the counter 47 is zeroed when the sprocket 11 chosen for setting is the one with the smallest diameter. If the sprocket chosen for setting is the i-th wheel of the

gearshift group, the value of the counter 47 is set to the value determined by the differential amount ~~$\Delta R(i-1)-i$~~ $\underline{\Delta R(i-1)-i}$ associated with the pair consisting of one of the sprockets 11 chosen for setting and the other one of sprockets 11 with immediately smaller diameter, added to all the differential amounts associated with any pair of smaller diameter sprockets. In other words, in the case in which the setting is carried out on the second sprocket 11, the value of the counter 47 shall be set to ~~$\Delta R1-2$~~ $\underline{\Delta R1-2}$, in the case in which the setting is carried out on the third sprocket 11, the value of the counter 47 shall be set to ~~$\Delta R1-2 + \Delta R2-3$~~ $\underline{\Delta R1-2 + \Delta R2-3}$ etc.

[0075]   In the alternative embodiment of the storage means illustrated in figure 5, the counter 47 shall be zeroed when one of the sprockets 11 chosen for setting is the one with the smallest diameter. If the sprocket chosen for setting is the i-th wheel of the gearshift group, the value of the counter 47 shall be set to the value determined by the differential amount [[$\Box R$]] --ΔR-- multiplied by i-1, in other words by the number indicating the position of the sprocket chosen for setting in the rear gearshift group 9, less one. In other words, in the case in which setting is carried out on the second of sprockets 11, the value of the counter 47 shall be set to [[$\Box R$]] --ΔR--, in the case in which setting is carried out on the third sprocket 11, the value of the counter 47 shall be set to ~~$\Delta R*2$~~ $\underline{\Delta R*2}$, etc.